

Medical Science

25(117), November, 2021

To Cite:

Al-Akhfash AA, Alharbi NHO, Alharbi ASM, Aljohani MDE, Alharbi AAM, Almaneai OMR, Alharbi AMM, Alharbi TSM. Parental awareness about non-steroidal anti-inflammatory drugs use and its side effects among their children in Qassim region. Medical Science, 2021, 25(117), 2850-2858

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Peer-Review History

Received: 27 September 2021

Reviewed & Revised: 28/September/2021 to 30/October/2021

Accepted: 01 November 2021

Published: November 2021

Peer-review Method

External peer-review was done through double-blind method.

Parental awareness about non-steroidal anti-inflammatory drugs use and its side effects among their children in Qassim region

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ABSTRACT

Background: Non-steroidal anti-inflammatory drugs, (NSAIDs) are widely used for various conditions, mainly as an analgesics and anti-pyretics in adults as well as in pediatrics. Most of the users of NSAIDs aren't aware of the serious side effects of these medications. **Aim:** Estimation of parental awareness about NSAIDs use and their side effects among their children in Qassim region. **Materials and methods:** The participants involved in the study are the parents whom have child/children aged 14 years old or younger. The population sample was selected randomly and they participated in the study with their own volition. The questionnaires were distributed through social media. Data analyses were done by using SPSS version 26. This study is cross-sectional study with a sample size of 516 conducted in Qassim region, Saudi Arabia. **Results:** 516 were recruited (153 males and 363 females). The most common age group was from 36 to 55 years (47.9%). 84.5% have heard about NSAIDs. 77.1% used NSAIDs for their children below 14 years, but only 36.2% knew about NSAIDs side effects. Among the responders, 12.6% experienced NSAIDs side effects. The most commonly experienced side effect was allergy (50%) and gastroenterology problems (30%). The awareness toward NSAIDs use was more common among females. **Conclusion:** The parental awareness of NSAIDs use was within the adequate range. However, parent's knowledge of the potential side effects was low. Females with 2-5 children, were most likely to administer NSAIDs for their children below 14, contradictorily informed of NSAIDs and its indication of use, yet not aware about NSAIDs side effects.

Keywords: NSAID, Awareness, Parents, Side effects, Children.



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1. INTRODUCTION

Non-steroidal anti-inflammatory drugs are defined as "A group of chemically dissimilar agents that differ in their antipyretic, analgesic, and anti-inflammatory activities (Whalen et al., 2015)". NSAIDs are used as an anti-pyretic, analgesic, and anti-inflammatory agents to relieve the symptoms of different illnesses (Whalen et al., 2015). The wide use of NSAIDs is due to that it's not expensive and is also easily available to the user. They are still considered safe to use however, using it extensively without care result in serious general health problems. Mostly these problems target and affect the gastrointestinal (GIT) system resulting in abdominal pain, dyspepsia, nausea, gastric and duodenal ulcers, and GIT bleeding. Another major system affected is the renal system that ultimately leads to serious complications like renal impairment (Henry & Mc Gettigan, 2003; Fries et al., 1989).

The objectives of our study are to explore parental awareness about NSAIDs use and their side effects in Qassim Region. We have hypothesised that large proportion of parents in Qassim region are not aware of its possible side effects. The other objectives include: to estimate the knowledge of NSAIDs indications for use, determine awareness of the prescribed drug class, determine the reason of NSAIDs prescription, estimate the duration of NSAIDs use. We tried also to assess the knowledge of the parents about their child medical diagnosis, and determine if the parents got educated about their child medical diagnosis and if they got educated about the medications that were prescribed from the treating/prescribing physician and/or the pharmacist.

We also included questions if their child encountered NSAIDs side effects and their type, estimate the knowledge about NSAIDs side effects, determine if the child is using any medications other than NSAIDs, if the parents searched in the internet regarding their child's disease and his/her medications and determine if the parents know the generic and brand name of the NSAIDs that were prescribed to their child.

2. METHODOLOGY

This is a cross-sectional study, conducted in Qassim region, Saudi Arabia. The study population comprised parents of children 14 years or younger. The sample size was 516 volunteers selected randomly by submission of an online self-administrated questionnaire through social communication programs (such as WhatsApp, Twitter, etc). Agreement for participation was taken and if the participant agreed, he/she will continue to answer the questionnaire.

Variables include

Demographic and educational, parents relation to the medical fields, social condition, number of children, knowledge of NSAIDs, Uses and side effects. Data were tabulated in MS Excel and all statistical analyses were performed using SPSS version 26. Descriptive statistics were presented using numbers and percentages (%). The relationship between the parents awareness toward NSAIDs used among children in relation to the socio-demographic characteristics had been conducted using Chi-square test. A subsequent multivariate regression model has been conducted to determine the significant predictor associated with the awareness toward NSAIDs use. A p-value of <0.05 (two-sided) was used to indicate statistical significance.

Study duration

The study was conducted between February 2021 and September 2021.

3. RESULTS

A total of 516 parents participated. Table 1 presented the socio-demographic characteristics of the parents. The most common age group was 36 – 55 years old (47.9%) with approximately 70.3% were females; the proportion of parents who were related to the medical field was 12.2%. With respect to their education, the majority were bachelor's degrees or diploma holders (62.2%) while 32.4% were high school level or less. Furthermore, nearly 60% were having 2 – 5 children; others had one child (22.5%). Table 2 showed the assessment of parents' awareness toward NSAIDs use. The proportion of parents who have heard of or read about NSAIDs was 84.5% with 61.6% knew regarding the indications of using it. Likewise, 30.8% of the parents knew that Fervidor, Aspirin, Panadol, Ibuprofen and Diclofenac fall under the term "NSAIDs" whereas 77.1% reported that they administered NSAIDs for their children age under 14 years, (figure 1).

Table 1 Socio-demographic characteristics of the parents (n=516)

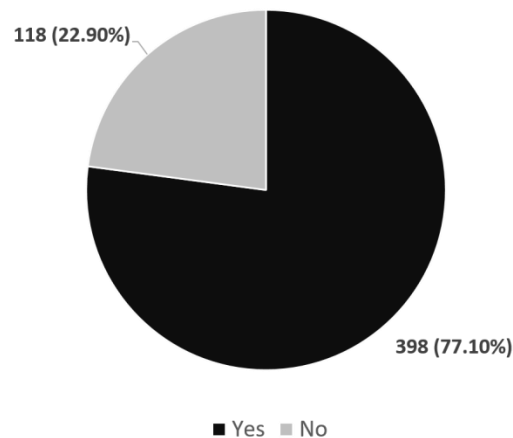
Study variables	N (%)
Age group	
18 – 25 years	72 (14.0%)
26 – 35 years	179 (34.7%)
36 – 55 years	247 (47.9%)
>55 years	18 (03.5%)
Gender	
Male	153 (29.7%)
Female	363 (70.3%)
Being related to the medical field (Medical student, health practitioner)	
Yes	63 (12.2%)
No	453 (87.8%)
Educational level	
High school or less	167 (32.4%)
Bachelor degree or diploma	321 (62.2%)
Master degree or higher	28 (05.4%)
Number of children	
1	116 (22.5%)
2 – 5	305 (59.1%)
6 – 10	91 (17.6%)
>10	04 (0.80%)

Table 2 Assessment about parental awareness toward NSAID use (n=516)

Statement	N (%)
Have you ever heard of or read about Non-Steroidal Anti-Inflammatory Drugs NSAIDs?	
Yes	436 (84.5%)
No	80 (15.5%)
Do you know what are the indications for using NSAIDs?	
Yes	318 (61.6%)
No	198 (38.4%)
Did you know that Fevadol - Aspirin – Panadol – Ibuprofen – Diclofenac fall under the term of "NSAIDs"?	
Yes	159 (30.8%)
No	357 (69.2%)
Have any of your children (aged less than 14 years.) ever used NSAIDs?	
Yes	398 (77.1%)
No	118 (22.9%)

NSAIDs such as; Fevadol, aspirin, Panadol, diclofenac

Figure 1 : children (aged less than 14 years) use of NSAIDs



The assessment of parental awareness toward side effects of NSAIDs was given in table (3). It can be observed that the prevalence of parents who knew the reason for NSAIDs prescription was 95.5%. Parents who indicated that their child were using NSAIDs for less than a week constitute 78.6% and for those parents who knew the medical condition of their child constitute 68.4%. The proportion of parents who reported that their physicians were able to educate them about the condition of their child and their medication were 84.7% and 64.1, respectively, (figure 3). The prevalence of respondents who knew NSAIDs side effects was 36.2%, (figure 2). Furthermore, 56.8% indicated that their child was using other drugs besides NSAIDs. The proportion of parents who browsed the internet to obtain information about their child's medical condition was 66.1%. NSAIDs side effects were experienced by 12.6%, (figure 4). The most commonly reported side effect of the child was allergy (50.0%) and gastroenterology problems (30%).

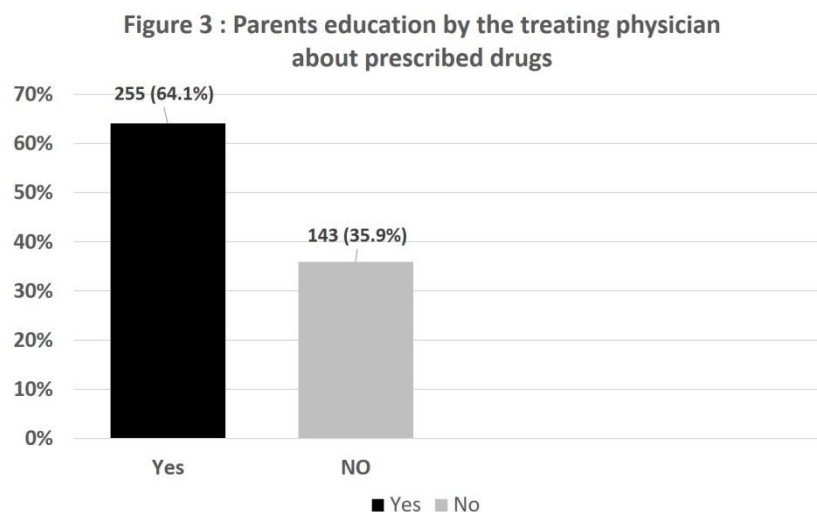
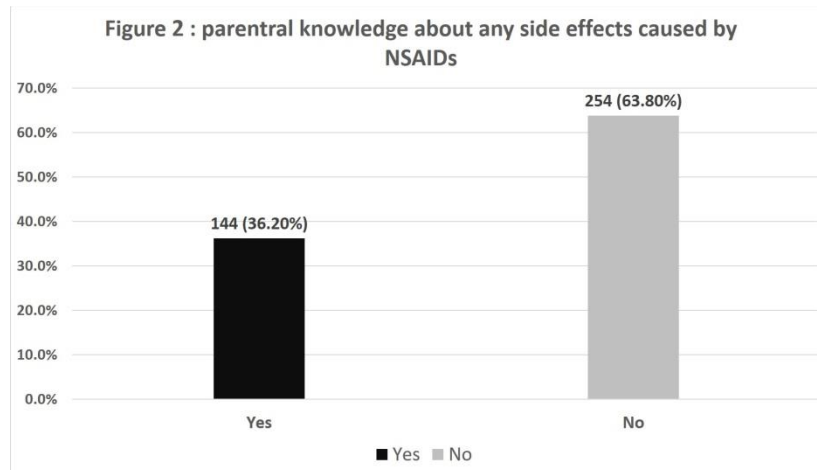
Table 3 Assessment of parental awareness toward side effects after administering NSAIDs to their children (n=398)

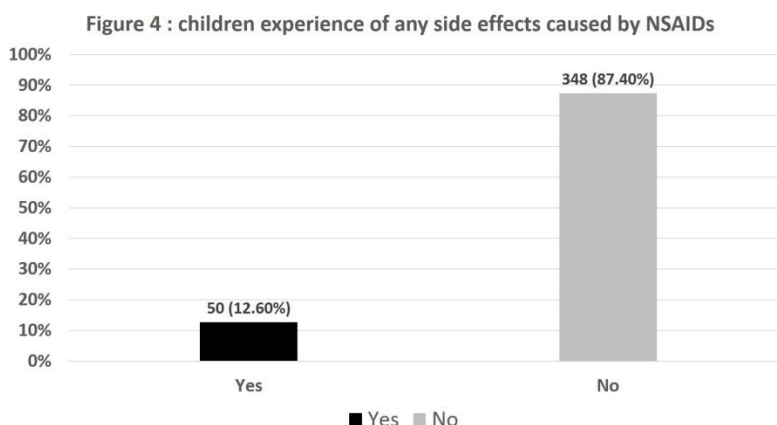
Statement	N (%)
Do you know why such medications were prescribed to your child?	
Yes	380 (95.5%)
No	18 (04.5%)
For how long has your child used them?	
Less than a week	313 (78.6%)
One week to two weeks	79 (19.8%)
Three weeks to four weeks	02 (0.50%)
More than four weeks	04 (01.0%)
Do you know your child's medical diagnosis before the drugs were prescribed?	
Yes	352 (68.4%)
No	46 (11.6%)
Did the treating physician educate you about your child's medical condition?	
Yes	337 (84.7%)
No	61 (15.3%)
Did the treating physician educate you about your child's prescribed drugs?	
Yes	255 (64.1%)
No	143 (35.9%)
Do you know any side effects caused by NSAIDs?	
Yes	144 (36.2%)
No	254 (63.8%)
Did your child use any other drugs alongside NSAIDs at the same time period?	
Yes	226 (56.8%)

No	172 (43.2%)
Have you ever browsed the internet for more information regarding your child's medical diagnosis?	
Yes	286 (71.9%)
No	112 (28.1%)
Have you ever searched the internet to know more about your child's prescribed drugs?	
Yes	263 (66.1%)
No	135 (33.9%)
Did your child experience any side effects caused by NSAIDs?	
Yes	50 (12.6%)
No	348 (87.4%)
What is the experienced side effect of the child? (n=50) *	
Kidney dysfunction	04 (08.0%)
Allergy	25 (50.0%)
Asthma attack provocation	06 (12.0%)
Gastroenterology problems (pain, gastric ulcer, etc.)	15 (30.0%)

NSAIDs such as; Fevadol, aspirin, Panadol, diclofenac

*Only 50 children who reported side effect after taking NSAIDs.





When measuring the relationship between the awareness toward NSAID used in regards to the socio-demographic characteristics of the parents, it was found that the prevalence of NSAID use was more common among parents who were in the older age group ($X^2=8.136$; $p=0.004$), gender female ($X^2=19.038$; $p<0.001$), those parents with 2 – 5 children ($X^2=17.959$; $p<0.001$), those who have heard of NSAIDs ($X^2=18.137$; $p<0.001$) and those who were aware of the indication of NSAIDs ($X^2=18.070$; $p<0.001$) (table 4).

Table 4 Awareness of NSAIDs used among children in regards to the Socio-demographic characteristics of the parents ⁽ⁿ⁼⁵¹⁶⁾

Factor	Use of NSAIDs		X2	P-value §
	Yes N (%) (n=398)	No N (%) (n=118)		
Age group				
≤35 years	180 (45.2%)	71 (60.2%)	8.136	0.004 **
>35 years	218 (54.8%)	47 (39.8%)		
Gender				
Male	99 (24.9%)	54 (45.8%)	19.038	<0.001 **
Female	299 (75.1%)	64 (54.2%)		
Being related to the medical field				
Yes	50 (12.6%)	13 (11.0%)	0.203	0.652
No	348 (87.4%)	105 (89.0%)		
Educational level				
High school or less	121 (30.4%)	46 (39.0%)	3.756	0.153
Bachelor degree or diploma	253 (63.6%)	68 (57.6%)		
Master degree or higher	24 (06.0%)	04 (03.4%)		
Number of children				
1	74 (18.6%)	42 (35.6%)	17.959	<0.001 **
2 – 5	241 (60.6%)	64 (54.2%)		
>5	83 (20.9%)	12 (10.2%)		
Heard of NSAIDs				
Yes	351 (88.2%)	85 (72.0%)	18.137	<0.001 **
No	47 (11.8%)	33 (28.0%)		
Knowledge about the indication of NSAIDs				
Yes	265 (66.6%)	53 (44.9%)	18.070	<0.001 **
No	133 (33.4%)	65 (55.1%)		
Knowledge about the term “NSAIDs”				

Yes	126 (31.7%)	33 (28.0%)	0.582	0.446
No	272 (68.3%)	85 (72.0%)		

§ P-value has been calculated using Chi-square test.

** Significant at $p < 0.05$ level.

In multivariate regression model, we identified, gender female, parents with 2 – 5 children, heard of NSAIDs and knowledge about the indication of NSAIDs were the independent significant predictors of the awareness toward NSAID use. This further indicates that female was 1.9 times higher to use NSAIDs to their child than male (AOR=1.981; 95% CI=1.242 – 3.159; $p=0.004$). We also observed that parents who were having 2 – 5 children were 2.7 times higher to use NSAIDs than the other parents (AOR=2.738; 95% CI=1.249 – 6.002; $p=0.012$). As well, parents who have heard of NSAIDs were twice as higher to use NSAIDs for their children (AOR=2.012; 95% CI=1.123 – 3.605; $p=0.019$). Finally, parents who were knowledgeable about the indication of NSAIDs were almost twice as higher to be more associated with NSAIDs use for their children (AOR=1.775; 95% CI=1.116 – 2.824; $p=0.015$) (Table 5).

Table 5 Multivariate regression analysis to determine the factors associated with Awareness of NSAIDs used among children ($n=516$)

Factor	AOR	95% CI	P-value
Age group			
≤35 years	Ref		
>35 years	1.535	0.961 – 2.451	0.073
Gender			
Male	Ref		
Female	1.981	1.242 – 3.159	0.004 **
Number of children			
1	Ref		
2 – 5	2.738	1.249 – 6.002	0.012 **
>5	1.550	0.775 – 3.099	0.215
Heard of NSAIDs			
Yes	2.012	1.123 – 3.605	0.019 **
No	Ref		
Knowledge about the indication of NSAIDs			
Yes	1.775	1.116 – 2.824	0.015 **
No	Ref		

AOR – Adjusted Odds Ratio; CI – Confidence Interval

** Significant at $p < 0.05$ level

4. DISCUSSION

The purpose of the present study is to measure the awareness of parents regarding NSAIDs use and its side effects among their children. Findings revealed that the awareness of parents toward NSAIDs use was sufficient. The majority (84.5%) of the parents have heard about NSAIDs, 61.6% were aware of the indication for using them and 77.1% reported that they previously administered NSAIDs for their children below 14 years old. While their awareness toward NSAIDs use seems appropriate, however, their knowledge about the side effects and contraindications was unsatisfactory, only 36.2% were aware of the side effects of NSAIDs. This is consistent with the paper of Wawryk-Gawda et al., (2014). Furthermore, data in this study suggested that females and parents with 2-5 children are more knowledgeable about the indication of NSAIDs.

In Saudi Arabia (Kamel et al., 2021), they documented that university education level showed a significantly better knowledge level regarding the administration of antipyretic medication while age, sex, nationality, employment status, and the number of children were not significant. However in our study, gender and number of children were found to have a significant role in the awareness toward NSAIDs use which was not consistent with previous reports. Moreover, most of the parents (95.8%) were aware of NSAIDs, 78.6% used this type of medication for less than a week, 70% aware of their child's medical history prior to drugs prescription, about 84.7% and 64.1%, respectively reported that they are properly informed about their child's medical condition and the prescribed drugs. As for side effects, it was revealed that 12.6% of parents that their children experienced adverse effects

after taking NSAID with allergy (50%) and gastroenterology problems (i.e. pain, gastric ulcer) (30%) were the dominant form of side effects.

Finally, the internet could influence parents for using NSAIDs for their children. About 56.8% of the parents were reading information through the internet to obtain additional knowledge regarding a medical diagnosis for their child and 71.9% used the internet for information about the prescribed drugs. This means that the information obtained from the internet increase their awareness on using NSAIDs for their children. However, it is better to consult a doctor for NSAIDs prescription or visit trustworthy medical websites to provide proper child health-care service.

5. CONCLUSION

The parental awareness of NSAIDs use was within the adequate range. However, parent's knowledge of the potential side effects was definitely low. Females having 2 – 5 children were more aware of NSAIDs and its indication of use thus they were most likely to personally administer NSAIDs for their children below 14 years. This study finds a huge gap in parents' level of awareness, specifically regarding the side effects of NSAIDs. Therefore, we highly recommend raising awareness of the side effects of NSAIDs use. It should be given a higher priority by medical practitioners who have a vital role in educating parents about the side effects and the proper way to administer NSAIDs dose applicable for children. For better outcomes, parents and healthcare providers should team up to minimize parental errors in the administration of NSAIDs among children below 14 years old. Availability and affordability of NSAIDs should never lead to misuse of the medication by parents.

Acknowledgment

We thank and appreciate the participants who were all contributed samples to the study.

Authors Contributions

All authors inputs were highly indispensable & appreciated, each of the primary investigation team have participated in proposal writing, study design, acquisition & analysis of data; acquiring the protocol of inclusion & exclusion criteria of our sample; revising & editing the manuscript.

Ethical approval

The study was approved by regional research ethics committee – qassim province, al-qassim region ministry of health, Saudi Arabia (ethical approval number 1442-2097748).

Funding

This study has not received any external funding.

Conflict of Interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are presented in the paper.

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